



# CDC Division of Parasitic Diseases and Malaria

## **STRATEGIC PRIORITIES**

2015–2020



Centers for Disease  
Control and Prevention  
Center for Global Health









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## Background and Introduction

Parasitic diseases, which can be transmitted by insect or animal vectors, blood or tissue donation, congenitally, or through contaminated food or water, cause a devastating burden for hundreds of millions of people around the world and in the United States. The parasitic diseases of primary public health importance include malaria, the neglected tropical diseases, and some neglected parasitic infections in the United States.

### Malaria

Between 2001 and 2013, an estimated 4.2 million lives were saved as a result of a scale-up of science-based malaria interventions, through collaborative efforts of the Global Fund, the President's Malaria Initiative, and Roll Back Malaria partners including endemic countries. Still, malaria continues to pose an enormous health burden worldwide. The World Health Organization estimates that in 2013 malaria caused 584,000 deaths and

approximately 198 million illnesses (clinical episodes). Approximately 3.2 billion people (half the world's population) in 97 countries/territories live in areas at risk of malaria. Malaria was eliminated in the United States in the late 1940's. However, the United States continues to be vulnerable to importations of disease as long as they exist elsewhere; on average there are 1500 cases of imported malaria annually.

## Neglected Tropical Diseases

Neglected tropical diseases affect more than 1 billion people—one-sixth of the world's population—largely in rural areas of low-income countries. These diseases cause a large toll on endemic populations, including lost ability to attend school or work, growth retardation in children, impairment of cognitive skills and development in young children, and place a serious economic burden on entire countries. Seven parasitic neglected tropical diseases—lymphatic filariasis, onchocerciasis, schistosomiasis, infections from soil-transmitted helminths (hookworm, *Ascaris*, whipworm), and trachoma can be controlled or even eliminated by providing safe and effective medicines to individuals in affected communities through mass drug administration. Several of the drugs used for mass drug administration have activity against

more than one neglected tropical disease. Along with mass drug administration, efforts to control the mosquitoes, blackflies, and other vectors that transmit these diseases, and to improve basic water, sanitation, and hygiene are highly effective against these neglected tropical diseases. Mass drug administration-based programs are considered one of the best buys in public health—with a cost of about \$0.10 to \$0.50 per person/year, resulting in the benefit of helping prevent or treat several different diseases. CDC also focuses on Guinea worm disease; while not treated with mass drug administration there has been a large collaborative effort to provide health education, good medical management, and increase the use of low-tech filters for drinking water. As a result this devastating disease is now on the verge of being eradicated.

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## Neglected Parasitic Infections

Parasitic infections still occur in the United States and cause serious illnesses, including seizures, blindness, infertility, heart failure, and even death. CDC has targeted five parasitic infections as priorities for public health action, based on the numbers of people infected, the severity of the illnesses or their resulting conditions, and our ability to prevent and treat them. These include Chagas disease, neurocysticercosis, toxocariasis, toxoplasmosis, and trichomoniasis. Most infections can be prevented, and many are treatable, but more awareness and action are needed.

- 300,000 people living in the United States are infected with the parasite that causes Chagas disease, and it is estimated that more than 300 babies are congenitally infected every year.

- Every year an estimated 70 people, most of them children, are blinded by toxocariasis.
- 2,000 people are diagnosed with neurocysticercosis every year, a leading cause of adult onset seizures.
- Toxoplasmosis, a leading cause of foodborne illness and death, chronically affects more than 6 million people.
- Every year 8 million people are newly infected with trichomoniasis, which has been associated with infertility and preterm labor in women, resulting in low birthweight babies.

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Significant progress has been made to reduce the burden of these parasitic diseases; however, key challenges remain. The purpose of this strategic framework is to articulate CDC's goals, objectives, and strategies to effectively address parasitic disease health threats during the next five years.



# Vision, Mission, and Values

## ➤ Vision

Fewer Parasitic Diseases—Healthier People

## ➤ Mission

To protect and improve the health of Americans and the global community from parasitic disease threats through evidence based public health action

## ➤ Core Values

Our work is guided by a commitment to *science*, *service*, *partnership*, and *stronger public health capacity*. We continually strive to:

### ➤ **Apply science to improve public health:**

We rigorously conduct research and apply the principles of laboratory, clinical, epidemiologic science, and related disciplines to address critical public health needs, translate research findings into policy guidance and program interventions, and evaluate the impact of public health programs.

### ➤ **Provide service:**

We share our technical expertise and public health experience with health partners and the public, and strive to identify and address health needs and reduce the impact of parasitic diseases domestically and around the world.

### ➤ **Engage in partnership to achieve common goals:**

We coordinate our activities in collaboration with a wide array of partners to more effectively and efficiently reduce the impact of parasitic diseases.

### ➤ **Build public health capacity:**

We work with domestic and global health partners to design, implement, and evaluate programs that monitor, prevent, and control parasitic diseases in order to strengthen overall health system performance, capacity, and sustainability.

# Strategic Goals

CDC is committed to working with domestic and global partners towards achieving progress in three primary areas during the next five years:

## 1. **Protect the United States**

Reduce death, illness, and disability from parasitic diseases in the United States

## 2. **Eliminate the Global Burden**

Eliminate the global burden of malaria and targeted neglected tropical diseases

## 3. **Advance Research**

Advance research to detect, prevent, and eliminate parasitic diseases

## Goal 1: Reduce death, illness, and disability from parasitic diseases in the United States

- 1.1 Improve monitoring of parasitic diseases in the United States
- 1.2 Improve diagnosis and detection of parasitic diseases in the United States
- 1.3 Increase capacity of clinical providers to diagnose and manage patients with parasitic diseases
- 1.4 Increase awareness of parasitic diseases through effective health communication and education
- 1.5 Reduce the risk of transmission of targeted parasitic infections in the United States



As the nation's public health agency, CDC has a mandate to protect people from health threats including parasitic diseases.



Six parasitic diseases, including malaria, are nationally notifiable in the U.S., meaning CDC works with states to monitor rates of disease to detect potential increases.



Fast and accurate diagnosis is vital to effective treatment and improved health. CDC provides timely and accurate information and consultation to the public, physicians, laboratories, and other partners to ensure appropriate diagnosis and treatment of parasitic diseases. Real-time diagnosis saves an average of \$75 per specimen and reduces the wait time for results from 48 hours to 30 minutes. Through the CDC Drug Service, otherwise unavailable life-saving drugs can be provided to health care providers for treatment of patients with parasitic diseases.



Dozens of parasites have serious health impacts on Americans, including seizures, blindness, infertility, and heart failure. CDC has targeted five neglected parasitic infections (Chagas disease, neurocysticercosis, toxocariasis, toxoplasmosis, and trichomoniasis) as priorities for public health action, based on the numbers of people infected, the severity of the illnesses, or our ability to prevent and treat them.

## Goal 2: Eliminate the global burden of malaria and targeted neglected tropical diseases



Much of the global burden from parasitic disease is due to malaria and a group of neglected tropical diseases.



Due to the high burden of malaria and neglected tropical diseases, unprecedented investments have been made to control or eliminate many of them. Elimination targets have been set for malaria, lymphatic filariasis, onchocerciasis, and blinding trachoma.



The most sustainable approach to address a health threat is to eliminate it. Disease elimination requires robust surveillance and response to inform data-driven approaches, both to use resources wisely and to measure impact.



Evidence-based guidance is needed to inform and assist countries and partners with decisions around the effectiveness and optimal mix of interventions, the scale down of interventions, and post treatment surveillance.



Malaria and neglected tropical diseases are still threats to U.S. travelers, the military, and to U.S. citizens living abroad. Prevention messages need to be reinforced, but global efforts toward elimination/eradication will help to reduce the global risk for everyone.

### 2.1 Increase scientific leadership and global capacity to support elimination of parasitic diseases

### 2.2 Accelerate elimination of malaria

- 2.2.1 Accelerate elimination of malaria transmission from the Island of Hispaniola
- 2.2.2 Accelerate elimination of malaria in southeast Asia to help curb the global spread of malaria drug resistance
- 2.2.3 Advance diagnostic tool development for use in low transmission settings to achieve malaria elimination
- 2.2.4 Maintain assistance for certification of malaria elimination in eligible countries

### 2.3 Improve and accelerate malaria control programs, including co-implementing the President's Malaria Initiative and the Amazon Malaria Initiative

### 2.4 Expand scientific leadership and technical support to accelerate eradication and elimination of targeted neglected tropical diseases

- 2.4.1 Accelerate global eradication of Guinea worm disease
- 2.4.2 Accelerate elimination of lymphatic filariasis in Haiti
- 2.4.3 Strengthen global capacity to eliminate lymphatic filariasis globally, onchocerciasis in the Americas and Africa, and blinding trachoma as a public health problem

### 2.5 Strengthen global capacity to control soil-transmitted helminths and schistosomiasis

### 2.6 Advance the next group of neglected tropical diseases prioritized for control or elimination, to become “tool ready” for public health scale up

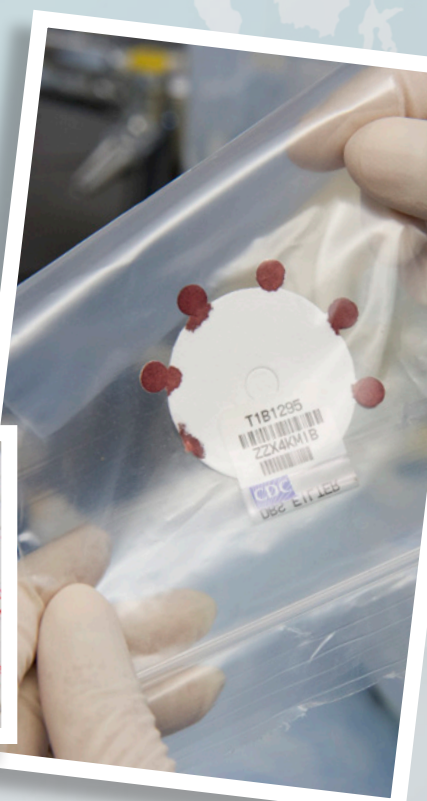
### 2.7 Strengthen surveillance systems to provide quality data for decision making

- 2.7.1 Establish routine surveillance systems to detect and monitor parasitic diseases
- 2.7.2 Improve the quality of existing surveillance systems to ensure collection of timely, complete, and useful data
- 2.7.3 Assist countries to integrate program-specific surveillance needs into routine systems



## Goal 3: Advance research to detect, prevent, and eliminate parasitic diseases

- 3.1 Strengthen the evidence base to support elimination of parasitic diseases
- 3.2 Develop and evaluate tools and interventions targeting the mosquito vectors that transmit malaria
- 3.3 Develop and evaluate tools and interventions targeting the malaria parasite
- 3.4 Develop and evaluate interventions to improve case management of malaria
- 3.5 Optimize the effectiveness and mix of interventions
- 3.6 Develop and validate epidemiological and analytical tools for detection and surveillance of targeted neglected tropical diseases
- 3.7 Evaluate the impact of parasitic disease control programs on other endemic diseases
- 3.8 Improve global research capacity for parasitic disease prevention and control through technical assistance and training



Tremendous success has been achieved towards reducing burden of malaria and neglected tropical diseases, but progress is fragile.



Program successes achieving lowered transmission and drug or insecticide resistance are creating shifting burden and technical challenges that require new tools and approaches, as well as better information and ability to adapt to new epidemiological landscapes.



There is evidence of growing insecticide and drug resistance for malaria. Insecticide resistance in malaria vectors has been reported in 53 of 65 countries around the world since 2010.



Neglected tropical disease elimination programs need data to inform decisions about when to stop mass drug administration and effective approaches to detect disease reoccurrence.



Research on new tools and approaches—to reduce transmission completely and to overcome technical challenges—will be needed to support elimination, including diagnostics, strategic use of treatment drugs, surveillance methods, vector control strategies, and vaccines.



# The United States and Global Health Context

The Division of Parasitic Diseases and Malaria's work is aligned with multiple higher level USG and global strategies, including those highlighted below.



## The Global Fund to Fight AIDS, Tuberculosis and Malaria

[www.theglobalfund.org/en/](http://www.theglobalfund.org/en/)

The Global Fund is designed to accelerate the end of AIDS, tuberculosis, and malaria as epidemics. Founded in 2002, the Global Fund is a partnership between governments, civil society, the private sector, and people affected by the diseases. The Global Fund raises and invests nearly US\$4 billion a year to support programs run by local experts in more than 140 countries.



## Global Health Security Agenda

[www.cdc.gov/globalhealth/security/index.htm](http://www.cdc.gov/globalhealth/security/index.htm)

The Global Health Security Agenda is an effort in partnership with U.S. government sister agencies, other nations, international organizations, and public and private stakeholders, to accelerate progress toward a world safe and secure from infectious disease threats and to promote global health security as an international security priority, to:

- Prevent and reduce the likelihood of outbreaks—natural, accidental, or intentional;
- Detect threats early to save lives;
- Respond rapidly and effectively using multi-sectoral, international coordination and communication.

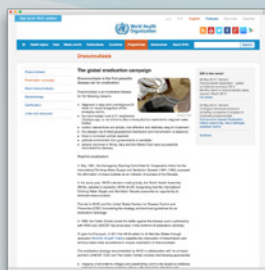
The U.S. will work with partner countries on eleven action packages to prevent, detect, and effectively respond to infectious disease threats.



## Global Program to Eliminate Lymphatic Filariasis

[www.who.int/lymphatic\\_filariasis/disease/en/](http://www.who.int/lymphatic_filariasis/disease/en/)

In 1997, the World Health Organization (WHO) classified lymphatic filariasis as eradicable or potentially eradicable. In that same year, the World Health Assembly (WHA) adopted Resolution WHA 50.29, which called on member states to initiate steps to eliminate lymphatic filariasis as a public health problem. In response to this call, WHO launched the Global Programme to Eliminate Lymphatic Filariasis in 2000. The elimination strategy has two components: (1) to stop the spread of infection (interrupting transmission); and (2) to alleviate the suffering of affected populations (controlling morbidity).



## Guinea Worm Disease Eradication Program

[www.who.int/dracunculiasis/eradication/en/](http://www.who.int/dracunculiasis/eradication/en/)

In 1981, the WHO's decision-making body, the WHA, adopted resolution WHA 34.25, which recognized that the International Drinking Water Supply and Sanitation Decade presented an opportunity to eliminate dracunculiasis (Guinea worm disease). This led to WHO and the CDC formulating the strategy and technical guidelines for an eradication campaign of dracunculiasis.





## Onchocerciasis Elimination Program for the Americas (OEPA)

[www.who.int/blindness/partnerships/onchocerciasis\\_oepa/en/](http://www.who.int/blindness/partnerships/onchocerciasis_oepa/en/)

OEPA is a regional initiative with the goal of eliminating morbidity and interrupting transmission of river blindness in six endemic countries in the Americas: Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela distributed in 13 foci. The OEPA strategy is to encourage the endemic countries to provide sustained ivermectin mass drug administration treatment every six months.



## President's Malaria Initiative (PMI)

[www.pmi.gov/](http://www.pmi.gov/)

The goal of the PMI, launched in 2005, was to reduce malaria-related mortality by 50 percent across 15 high-burden countries in sub-Saharan Africa through a rapid scale-up of four proven and highly effective malaria prevention and treatment measures. Under the PMI Strategy for 2015-2020, PMI will take a strategic approach which emphasizes the following five areas: (1) achieving and sustaining scale of proven interventions, (2) adapting to changing epidemiology and incorporating new tools, (3) improving countries' capacity to collect and use information, (4) mitigating risk against the current malaria control gains, and (5) building capacity and health systems.



## Rollback Malaria

[www.rbm.who.int/](http://www.rbm.who.int/)

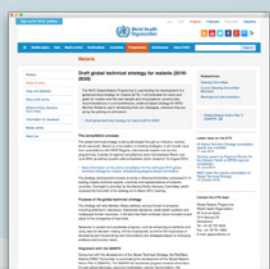
The Rollback Malaria Partnership is the global framework to implement coordinated action against malaria. It mobilizes for action and resources and forges consensus among partners. The Partnership is comprised of more than 500 partners, including malaria endemic countries, their bilateral and multilateral development partners, the private sector, nongovernmental and community-based organizations, foundations, and research and academic institutions.



## USAID's Neglected Tropical Diseases (NTD) Program

[www.neglecteddiseases.gov/](http://www.neglecteddiseases.gov/)

In February 2008, the Neglected Tropical Diseases Initiative was launched with a pledge to make available \$350 million over 5 years to deliver integrated neglected tropical disease treatment to 300 million people in Africa, Asia, and Latin America. This program is making large-scale, cost-effective contributions to the global effort to reduce the economic and epidemiologic burden of neglected tropical diseases.



## WHO Global Malaria Technical Strategy

[www.who.int/malaria/areas/global\\_technical\\_strategy/en/](http://www.who.int/malaria/areas/global_technical_strategy/en/)

The World Health Organization's global technical strategy for malaria articulates the vision and goals for malaria over the next decade and brings together current policy recommendations in a comprehensive, evidence-based strategy for WHO member states to use in developing their own strategies, on their pathway to elimination.





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[www.cdc.gov/parasites](http://www.cdc.gov/parasites)